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ABSTRACT

The Environmental Education/Communication Skills program was designed to improve junior high school students' reading and writing skills. The key idea of the program was to motivate reading and writing improvement through environmental topic learning. Content focus areas were: orienteering, plant life, animal life, environmental problems, and future planning. A problem-solving approach and scientific method of investigation were stressed. Program evaluation focused on program operation and program effect. The program appeared to be fully implemented. The strengths of the program were seen as content base and focus for language arts activities, positive staff attitudes, staff preparation, basic organization of rotating groups in topic areas, availability and quality of materials and equipment, and supervision and coordination. Students' achievement in reading comprehension was evaluated pre and post by the Literal and Inferential comprehension subtests of the Stanford Diagnostic Reading Test. Fifty-eight percent of participating students reached or exceeded the criterion in literal comprehension, 54% percent reached or exceeded the criterion in inferential comprehension. Ninety percent had acceptable scores on Writing Sample Characteristics Tests. Student and staff attitudes were evaluated using a questionnaire format. The staff felt the program was meeting its goals and should be maintained. Student responses were very positive. (MK)

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FINAL REPORT

AN EVALUATION OF ENVIRONMENTAL EDUCATION/COMMUNICATION

SKILL PROGRAM

Summer 1979

COMMUNITY SCHOOL DISTRICT #27

NEW YORK CITY BOARD OF EDUCATION

SEPTEMBER 1979

PREPARED BY DR. ELAINE CHAPLINE

An Evaluation of a New York City
District Educational Project funded
under Title I or the Elementary and
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Environmental Education/Communication Skills Program

Introduction

The Environmental Education/Communication Skills Program was designed to improve junior high school students' reading and writing skills. The six week program, July 2 to August 10, was to operate at PS 183 in the Rockaways and JH 226 on the mainland.

The key idea of the program was to motivate reading and writing improvement through environmental topic learning. Five topics selected to provide the content focus were: orienteering, plant life, animal life, environmental problems and future planning. Reading materials and writing experiences were to be related to the content under study. A problem-solving approach and scientific method in investigation were processes to be stressed.

Each of the topics was to be taught in a "laboratory" for four days by a teacher-paraprofessional team who specialized in that topic. A field trip was scheduled one day per week. Students attended a different lab for each of the first five weeks. During the sixth week students were to choose to work on a topic of particular interest or to have an opportunity for a special activity.

Evaluation Procedures

Two aspects of evaluation were considered, program operation and program effects. The former were to be assessed through visits to program sites, the latter through testing.

Program sites were observed on July 9, 16, 23, and August 7. Observations of the laboratory's organization, activities, materials and methods and of staff-student interaction were noted. A staff meeting was visited on July 9.

Program effects on reading were assessed, pre and post, by a standardized criterion referenced test, The Stanford Diagnostic Reading Test, Brown Level. Two aspects of reading comprehension were tested, literal comprehension, that is comprehension of facts and details in the materials and inferential comprehension, that is drawing conclusions from the materials.

Writing was assessed by using Writing Sample Characteristics, a locally developed instrument, to score the pre and post writing samples. This instrument was based on a New York State Education Department list of ten writing characteristics, such as consistent time frame, plan of organization or logical sequencing, coherence, etc. The content of the writing sample was an essay and a business letter. An individuals' score was the total based on ratings of each of the ten characteristics on a 6 point scale (Unsatisfactory to Exemplary). Teachers were trained to use this instrument.

The program's effectiveness from the participants point of view was also considered. Student and staff views were studied using questionnaires.

Program Implementation

Staff

The staff included five teachers, five paraprofessionals, and a supervisor at each of the two sites, and an administrative interne who coordinated the program. The teacher-paraprofessional teams became specialists in a particular area and worked each week with a different group of students. The personnel were all experienced, highly qualified individuals.

Facilities and Equipment

Each program site's office was located in the schools' library. The classrooms (turned into laboratories) were those rooms adjacent or closest to

the library. The program, therefore, was clustered in a particular space in the building with the library serving as a central spot. The library was always available and was used regularly for small group and individual research.

Material needs had been anticipated and orders were placed so that things were ready when the program began. Materials, new to the students, specifically related to the program's goals and topics were provided. Some references were widely available in the laboratories, such as Doing Research and Writing Reports on different levels, while others were specifically geared to a particular content focus. Microscopes with appropriate slides and audio visual equipment were used regularly.

Each of the rooms had been prepared for the students with a wide range of interesting materials on the bulletin boards, walls and tables. Posters stated the theme of the laboratory, for example, cell structure, endangered species, parts of a flower, an aerial photograph, maps, etc. (As soon as students had produced materials, these products began to appear on bulletin boards in the labs and in the halls). Collections and materials for projects, such as seeds to grow, plant materials to be used in making a terrarium, wood, hammers and nails, etc. were in use regularly.

An extensive film record of trips was made. Trip pictures were developed and posted promptly after the first trip and continued to be posted during the program. Students developed interesting, frequently humorous, titles for pictures. The availability of cameras, film and the use of quick processing facilities made this filming possible.

Students

A total of 180 students were served in the program. The largest number

were seventh graders, with eighth graders somewhat less numerous and sixth graders minimally present. Most of the students had heard about the program from a teacher, most often from a reading laboratory teacher or a counselor. Some heard from a friend or family member.

Students had applied in advance for admission to the program, but some of those who had indicated interest and had applied did not actually start the program. Students who began on the first day often returned the next day with a friend who was interested but who hadn't applied in advance. Such students were welcomed and continued to be welcome as long as the program could accomodate them.

The staff's perception of the students, revealed on questionnaires, varied. Most frequently, students were described as self-motivated and interested. Words like receptive and cooperative were used frequently in descriptions. With respect to skill levels and need for remediation, the staff saw them as very similar to or less skilled than the students with whom they worked during the school year.

Attendance

Nine students had perfect attendance, i.e. 30 days, while 56 additional students attended 25 or more sessions. The average attendance at School A was 23 days, at School B 20.

Environmental Context

Students who attended the program faced an unusual problem in getting to school. The local bus line, Green Bus Line, went on strike as the program began and continued on strike throughout the program. Students reported that for the most part they walked to school, sometimes with a friend and sometimes

alone. Many were able to get a ride but walked if they didn't get a ride. A few rode bicycles. Very few took the train in Rockaway.

There was a period of intense heat and humidity which took its toll on people's energy. Despite the fact that one of the schools was air conditioned, some students at that school voiced concern about some room's being hot. It appeared that the air conditioning was not equally effective in all rooms.

A local newspaper The Wave ran a story on the program. The story included information about the program presented a very positive manner.

Organization

Students were organized into work groups at the start of the program based on their grade. Some individual shifts took place as seemed appropriate. The basic plan was for students to spend a week on a topic area with one teaching team, then move to another area. This seemed to work effectively in providing stimulation and variety in the students' experience.

It should be noted that on the day that students made their first shift to a different lab, there was a great deal of consternation. Even though students had been informed about the design so that the shift was not a surprise, many reacted to the fact of moving. During the first week of the program, they evidently had developed strong attachments to "my teachers" and "my room" and were reluctant to make the shift. Within a short time, less than one hour in most cases, students were occupied with their new topic and working out relationships with the staff. Subsequent shifts were more readily accepted.

Classes met for three hours, 9:00 to noon, daily. Within the laboratories, teachers provided variety in the students' activities. All teachers ensured

that students read and wrote each day. These activities, designed to increase students' skills, ideally were related to the content under consideration.

Students frequently worked as individuals, for example on assignments. They also worked within small groups, such as, locating information in the library and preparing to report it back to the class. They worked as part of a total group in discussions, slide or film strip viewing, etc. On any given day, each student typically worked both alone and with others.

The teacher-paraprofessional teams worked together smoothly, in guiding activities and providing supervision. The amount of time that had been devoted to their planning and preparation before the students arrived was evidently well spent.

Learning Activities

Learning activities varied widely but had as a common thread an experiential element. For example, in beginning work on environmental problems, the group went for a walk around the schools' neighborhood to note and take photographs of environmental problems. Or, beginning work on orienteering, the group went out for a short walk around the school to observe the area, develop directional orientation, and then went into the lab to make a map of the area. These experiences set the frame of reference for reading and writing activities. A technical point, such as a legend on a map, takes on meaning for a student when it is related to direct personal experience.

Classroom experiences were related to the current issues in our society when possible. For example, the day after President Carter's national address on energy, a future planning group, using a morning newspaper as a resource,

discussed some of the main points of the speech. This discussion made clear the need for clarification of concepts, like rationing, and for definition of words, like synthetic. The importance of considering pro's and con's of various strategies was brought out as the students answered the teachers question, "Is it a good idea to use coal?" Some one felt that it was a good idea because "We got more oi it," while others pointed out problems, "No, it pollutes," and "Mining it tears up the trees." Key points of the speech were listed on the chalkboard and students were directed to note points in their notebooks.

An animal laboratory had several live animals in cages which provided some children a unique opportunity to observe and to handle an animal. Being able to touch a snake, for example, corrected many faulty ideas about snakes and provided some students with an opportunity for facing and reducing their fear of snakes.

Viewing a filmstrip on simple plants introduced the world of microscopic studies of plants which was to be pursued by further investigation. Many student questions were provoked by the filmstrip. The roles of plants in people's daily lives were stressed in class discussion and in students' reading and writing.

Activities that were content related provided opportunities for variety in daily activities. For example, in future planning as part of an energy conservation activity, groups made switch plates for light switches on which they wrote Save A Watt. When concerned with recycling waste materials, students made vases or candle holders using crushed eggshells and empty bottles. While in the plant life laboratory students planted seeds and cared for plants, and

in the orienteering lab students learned how to water proof matches for use when camping or outdoors.

Writing activities were designed that had a clear purpose. Business letters were written often requesting information. Students were delighted to get replies to their letters. One noteworthy letter was sent to Mayor Koch reporting a problem in a park noted during a field trip. The mayor's reply was highly valued.

Creative writing was stimulated by having students imagine that they were an object (a rose, a venus fly-trap, Christmas tree, etc.) and having them describe "A Day in the Life Of" They also wrote based on their own experiences, such as about a pet. They wrote based on what they had read, for example, on extinct or endangered species of animals such as dinosaurs, jaguars, gorillas, eagles, etc. These writing activities provided opportunities to select topics which were interesting and to write something that they felt was worthwhile or important.

While the teaching as illustrated above generally functioned on an admirable level, it was not uniformly good. Some activities were not as well planned or "meaty" as they needed to be to sustain students' involvement. Some things, such as games seemed to be used to fill time and control students without having much direct contribution to skill building. Sometimes a learning activity became more abstract than appropriate for the learners, for example, learning vocabulary words out of context.

Trips

Trips played an important role in the total program. They gave students the opportunity to try out skills, (for example to use a compass), to see

and identify things that they had read about (like plants or trees), to learn new things, to gain deeper understanding or a new perspective on some information and to become more familiar with some of the important learning resources in Queens. The trip sites were: Jamaica Bay Wildlife Sanctuary, Alley Pond Environmental Center, Dead Horse Bay in Gateway National Park and the Queens Museum.

Students' evaluations of the program revealed the trips evoked strong feelings. For some students trips were the best part of the program, for others the worst part. Students' responses to the inherent interest value and exciting potentials of a site probably account for some of the positive attitudes expressed. Negative attitudes appear to have been related to going to the same place more than once and physical discomforts like feeling very hot both in the bus and at the site, feeling that a place was too wet, too buggy, etc. Some reaction of city people to being out of doors in a natural environment where one might encounter some bugs or snakes, for instance, seem like a mild form of culture shock. Perhaps additional efforts in both preparing for a trip in advance and working with reactions and ideas after the trip would help to maximize the learnings based on trip experiences.

Staff-Student Interactions

The enthusiasm and commitment of the staff to the program were evident. Students responded positively to the staff's positive attitudes. Staff members seemed to know the students very quickly and to find ways to involve them positively in learning activities. The rapport seemed exceptionally good. Students' behavior and statements indicated that they felt that the teachers were interested in them and cared about what they were doing. Staff members appeared to be supportive and encouraging toward students.

Parental Involvement

Both schools held workshops for parents. July 17 was the workshop date at JH 226 and August 2 the date at PS 183. The sessions were planned to include a variety of activities. Parents, staff and students met together in the library to witness a demonstration related to plants given by a professional florist. The reaction to the demonstration by students, parents and staff were quite positive. Parents had an opportunity to visit each of the laboratories and to meet and talk with the teachers. District support for this activity was apparent. District administrators came to this event and met and spoke with parents.

Newspaper

A newspaper was prepared for the program which ran to 24 pages. There were a few contributions by staff members but the bulk of the paper was written by and illustrated by students. The paper was exceedingly well received. It provided a culmination point for the writing that had been taking place during the program. All of the content areas were well represented. Both creative and factual writing were included; poetry and prose forms were used.

In watching some of the students at work on page layouts and illustrations, the evaluator was impressed with the variety of skills that were being developed and brought into play. The enthusiasm for and commitment to the project were outstanding. Skillful supervision was provided by the program coordinator.

Field Day

A final project activity for each school was a Field Day on August 10 and 13 at Gateway National Park. A student committee from each school worked

with the program coordinator in planning the Field Day events and activities.

Activities included an orienteering scavenger hunt, arts and crafts (kite making, bird feeder construction, tie dying, sand sculpturing and ink, pen and paper making from natural objects) and sports activities (relay races, ball throws and a volley ball game). Students received a red ribbon which recognized their participation in the event. The District Superintendent and Director of Reimbursable Programs were present and awarded trophies to winners of individual events. Refreshments were provided. Feed-back on Field Day was highly positive on the part of students and staff and National Park Service personnel.

In summary, the program appeared to be fully implemented as proposed. The strengths of the program were: content base and focus for language arts activities, staff's positive attitudes, preparation by the staff for the program, basic organization of rotating groups in topic areas, availability and quality of materials and equipment, and supervision and coordination. Based on this first year's experience, improvements should be made in student recruitment and orientation, trip organization and integration of trips into the program, also, some of the learning activities should be strengthened.

Program Effectiveness

Students' achievement in reading comprehension was evaluated by testing them at the beginning and at the end of the program on the Literal and Inferential comprehension subtests of the Stanford Diagnostic Reading Test, Brown Level. Since individuals' scores varied widely (range 1.3 to 10.6 on pretest) and no criterion levels have been established in reading comprehension, progress in individuals' scores was considered the appropriate indicator. The

criterion applied was gain of at least one month in grade equivalent scores. When students gained this much or more they were considered to have reached the success criterion in the program.

Overall, comprehension scores gains were substantial. A total of 71 students (58 percent) reached or exceeded the criterion in Literal comprehension, that is reading facts and details. A total of 66 students (54 percent) reached or exceeded the criterion in Inferential comprehension, that is drawing conclusions in reading. The pretest average total reading grade equivalent was 4.95, the posttest average 5.21. These scores attest to the student group's need to develop skills and support the observation that a substantial number of students increased their reading skills as they participated in the program. In terms of historic gains for this group of seventh and eighth grade students, having an average gain of more than one month represents a level of progress that has not been characteristic.

The writing samples, consisting of a business letter and an essay, were scored on Writing Sample Characteristics, an instrument based on the ten writing characteristics described by the New York State Education Department. Each of these characteristics was rated on the scale: 0 = unsatisfactory, 1 = poor, 2 = acceptable, 3 = good, 4 = very good, and 5 = exemplary. These were then totaled. A final total score of 20 (i.e. acceptable) was established as the criterion for successful achievement. Of the 117 students for whom pre and posttest scores were available 37 (32 percent) had acceptable writing on the pretest and 90 (77 percent) had acceptable writing on the posttest. These gains in performance suggest that students had profited from the intensive writing activities in the program.

Questionnaire Responses

The staff views of the program which were very positive initially were positive on the post program questionnaire. Among the strengths of the program most frequently cited were: students' motivation, variety and stimulation provided by rotation of classes on a weekly basis, the way teacher-paraprofessional teams worked together, quality of materials, supportive supervision, field trips and the innovative approach to curriculum.

The staff felt strongly that the choice, variety and organization of the trips needed improvement. Other specific recommendations offered were: having more program publicity in the schools and beginning recruitment of students earlier, including sixth grade students who are going on to junior high school, having an evaluation of students by teachers and counselors who know the students, and having students involved in program planning. While many staff members had commented on the quality of materials, some suggested improving the quality by choosing things designed to build specific skills. With respect to parent involvement, it was suggested that parents be involved with students in orientation to the program. To increase parent involvement, it was suggested that more parent workshops be held, that regular open house with parents' visiting classes be organized, and that parents be invited to participate on trips. It was recommended that program administration be continued in its current manner about which staff had commented positively.

In summary, the staff felt that the program was meeting its goals and should be maintained. Positive appraisal and comments far exceed criticism. Valuable suggestions for program improvements attest to the staff's professionalism.

Student responses to the program were very positive. Among the aspects cited as the "best thing about the program" were: the trips, the teachers,

interesting classes, changing classes, reading, learning about the environment, projects and "everything." Among the "worst things" cited were: "nothing", tests, trips, too much work, the heat. Improvements suggested were: more reading, better trips including one for swimming and fewer tests. One enthusiast suggested extending the program to 3:00 p.m.

Overwhelmingly, the students said that the program should be continued. Among the comments offered were:

"I love the program and hope it continues."

"We play around and learn at the same time. The teachers do not bore us."

"I will come again."

"I learnt more."

"Keep the program, because it was very good and you don't need nothing to make it better."

Summary and Recommendations

The Environmental Education Communication Skills Program was well designed, well organized and well implemented. A highly professional enthusiastic staff provided many stimulating learning activities through which students' reading comprehension and writing skills were fostered. Substantial gains in students' skill levels were noted.

It is recommended that this program be maintained as a Title I program. The following recommendations are offered with the goal of improving the program:

1. Begin the student recruitment process earlier in the spring by informing the teaching and counseling staff in the feeder schools about the program. Having a successful first year to describe will probably be useful

in persuading the teaching staff to inform students and encourage their enrollment in the program. Maintain the current process of students' initiating and carrying through the application, which has the advantage of both requiring and supporting students' personal responsibility for their learning.

2. Organize the trip program so that individuals don't repeat their visit to a field trip site unless there is a distinctly different aspect of that site with which they will be engaged. Within the labs, the teaching staff should increase their discussions with students which prepare for a trip to help students develop clear and realistic goals,, and their discussions and activities which follow a trip to help students to reflect on their learnings.

3. Maintain the staff preparation time prior to the beginning of the program. Building on the curriculum already developed, staff members should plan additional activities to be executed on a variety of skill levels which are of high interest value for students.

4. Since the Newspaper was highly successful, it is worthwhile to consider using the idea of a shared publication earlier in the program. Earlier publication, at the end of the second and fourth weeks for example, would necessarily produce a shorter publication which could have the advantage of serving as a vehicle to publicize coming events as well as to share ideas and achievements. These "newsletters" or "bulletins" could provide additional stimulation to students' writing during the program.

5. Parental involvement could be fostered by inviting parents more than once to a program site. Providing an open house format, for an hour perhaps, in which students can describe informally what they are doing, why they are doing it and what they are learning would give parents the opportunity to see the program in action. Parents might also be invited to accompany students to their trip sites and participate in activities there.